Summer 2004

Enviro News

A newsletter for environmental programs in Harford County

Welcome

After a year long hiatus, we are happy to bring back the Enviro News and to continue to provide you with interesting articles about environmental issues that impact your community. There are many ways we impact or can minimize our impact on the environment. Many of our activities begin as habits. By changing our habits and teaching the younger generation better habits we can improve our environment.

Read this month's issue to learn more about the progress of the Bush River Watershed Study, an investigation of the status of the health of a major watershed in Harford County.

Enviro News is distributed quarterly (March, June, September, December) and is available in all Harford County Library branches, in display racks at various locations throughout the County, and on the Internet at www.co.ha.md.us under "News and Meetings".

Explore Otter Point Creek

Spend a summer evening paddling through the marsh.

Friday, July 30th, 2004
6 pm to 8:30 pm

Anita C. Leight Estuary Center, Abindgon
(410) 612-1688

James M. Harkins
Harford County Executive
"Preserving our Values, Protecting our Future"

Bush River Watershed

Continuous Shallow Water Quality Monitoring

by Michele Dobson
Harford County Water Resources

In spring 2003, Harford County Department of Public Works and the Maryland Department of Natural Resources (DNR) joined together to begin a continuous shallow water quality monitoring program on Lauderick Creek near the confluence with the Bush River.

This program is designed to collect water quality data to discern the links between water quality, harmful algal blooms and fish kills. The data will also be able to characterize existing conditions and detect changes in water quality that may be in response to management actions taken to protect living resources.

This program will provide the necessary data to assist in developing the most cost-effective solution to restoring the Bay and its tributaries.

DNR is utilizing new monitoring technologies to assess the water quality. A YSI 6600 data logger is anchored in Lauderick Creek one meter below the water surface and is programmed to record water temperature, salinity, dissolved oxygen, pH, turbidity, and chlorophyll (indicator of plankton concentrations) every fifteen minutes, 24 hours per day from April through November. This timeframe corresponds with the growing season for bay grasses.

(Continued page 2)

This document available in alternative format upon request

Schedule of Events

Wade-In - June 5th, Join the Upper Western Shore Trib. Team wade into the Bush River to determine the depth of water clarity. Environmental family activities; Anita C. Leight Center, Abingdon; (410) 612-1688.

Water, Water, Everywhere – June 21st – July 2nd; Learn about stream ecology and how the critters in the stream are indicators of water quality. Prepare to get your feet wet. Grades 6 – 8, fee, pre-registration; Harford Community College (410) 836-4376.

Behind the Scenes Tour Baltimore Aquarium – June 26th; Take a look at how all the pipes and tanks in the aquarium work up close and listen to staff describe how the thousands of animals are cared for daily; Baltimore; Fee, pre-registration (410) 727-3474.

Estuary Studies – June 28th; July 28th, August 16th; Spend a day with the crew of the Martha Lewis discovering the natural resources in the bay; Havre de Grace; Children ages 11 – 15, fee, pre-registration; (410) 939-4078.

For More Info

- Chesapeake Bay Program (800) Your-Bay
  www.chesapeakebay.net
- Harford Community College (410) 836-4000
  www.harford.edu
- Harford County Government (410) 879-2000
  www.co.ha.md.us
- MD Dept. of Natural Resources (877) 620-8367
  www.dnr.state.md.us
- National Aquarium in Baltimore (410) 576-3800
  www.aqua.org
- Skipjack Martha Lewis (410) 939-4078
  www.skipjackmarthalewis.org

Recommended Readings

The Bay Journal
by Alliance for the Chesapeake Bay
The Bay Journal provides a comprehensive insight to the myriad of research and programs that affect the Bay, from the 2003 canoe and kayak sojourn to curbing animal waste from farms. Ten issues a year. Free subscription. www.bayjournal.com

Shallow Water Quality Monitoring (Continued from page 1)

A data telemetry system comprised of a field component located at the site and an office component located at DNR offices in Annapolis, allows for this 'real-time' recorded data to be collected and displayed on DNR's web site.

DNR also collects weekly water samples that are analyzed by a laboratory for chemical parameters that cannot be measured by the data logger. These parameters include total and dissolved fractions of nitrogen and phosphorus, dissolved organic carbon, total suspended solids, and chlorophyll.

Additionally, on a monthly basis, DNR uses a DATAFLOW water quality monitoring system to intensively monitor the shallow water habitats within the Bush River that are critical for bay grasses and other living resources.

The compact unit is a system of water quality probes, housed on a small boat that measure spatial position, water depth and the same parameters as the data logger from a flow-through stream of water collected near the surface of the water.

This system allows data to be collected continuously, every four seconds as the boat travels throughout the shallow and channel areas of the Bush River. This sampling efficiently characterizes and maps the water quality of the tributary for a single day in time.

Collectively, the water quality data and water quality mapping technologies can focus on many of the key management issues addressed in the Chesapeake Bay 2000 Agreement.

This includes determining water clarity criteria crucial for the growth of bay grasses, targeting specific areas for the restoration of bay grasses and identifying localized areas of water quality concern, such as areas with algal blooms or low DO that cause fish kills, and its possible link to nearby landuse.

For more information about the Bush River and current Maryland water quality, visit DNR's Eyes on the Bay at www.eyesonthebay.net.

Volunteer

Water Monitoring Data Web-based Clickable Map

by Christine Buckley

The Maryland Water Monitoring Council (MWMC) was formed in 1995 to foster the coordination and collaboration of water monitoring activities including physical, chemical and biological monitoring of ground water and surface water in freshwater, estuarine and marine environments. The Council board of directors consists of members from federal, state and local governments, academia, industry and volunteer organizations.

Members volunteer their time in developing tools that promote communication among individuals and organizations collecting data and/or using data. Some of these activities include workshops such as Monitoring Quality Control, Stream Monitoring Roundtable and the Maryland Ground Water Network Evaluation and products such as the Monitoring Data Clickable Map.

In 2003, the MWMC implemented a GIS (geographic information system, or computer mapping) Web Interface to display water monitoring activities within the State. Any group or organization that collects data is invited to submit the required information for inclusion in the map.

The Clickable Map displays the locations of the monitoring sites along with descriptive information or metadata about each of the sites. Some of the information about the sites includes type of monitoring, type of data collected, and watershed location. For actual monitoring data, the user is referred to the group or organization that collected the data.

The user of the Clickable Map is able to identify metadata for individual site locations or develop a search of the metadata for particular types of data. For instance, the user can search for chemical monitoring sites that collect data for nutrients and pH and are located in Harford County.

For more information, visit the website at:

http://cuereims.umbc.edu/website/mwmc

Guest Author

The Love of Butterflying

by Lisa Nowakowski

Raising and releasing butterflies and silk moths has been a part of my life for many, many years. To witness the spectacle of the lovely creatures hatching from their chrysalises or cocoons is an experience that no one should miss. To go through one's life without having had this opportunity is most unfortunate.

Children always marvel at nature's wonders, but adults have the unfortunate responsibility of more practical matters at hand that often prevent them from taking time out of a busy day to witness the magic of nature.

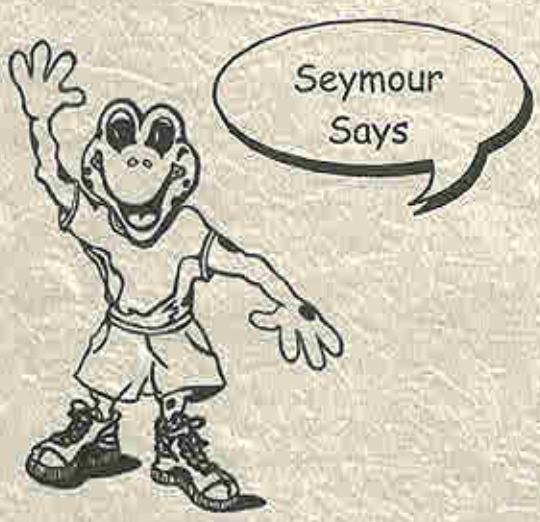
My first sighting of a silk moth was that of an exquisite Luna moth at a cottage in upstate New York where my family spent the summers. He flew to our window late one night. My mother and I watched in awe as the gossamer-winged creature with glowing eyes sat motionless till dawn. And just as the sun rose in the sky, he took to the air to find his mate.

The life cycle of the Luna moth is truly fascinating. As an adult insect, the moth has no viable mouth parts with which to drink from and therefore does not eat. He cannot chew as he did while in the larval stage, nor can he nectar at flowers or sip minerals from the soil.

Unlike the stunning sphinx moth that begins life as the tomato horn worm and nectars freely in the meadow as an adult, the beautiful Luna moth is destined to spend its adult life (about two weeks at most) in search of a mate, breeding and laying eggs.

The female Luna moth typically emits her enticing pheromones between four thirty and six o'clock in the morning in order to attract a mate. Occasionally, even before she emerges from her silken cocoon she will begin to emit pheromones to ensure the early arrival of a male.

(Continued page 4)



With the summer season approaching, the following are some suggestions on how to make your activities more environmentally friendly:

✓ Control mosquitoes the natural way

Build a bat box. One bat can eat over 1,000 insects per night.

Information on bats and bat boxes can be found on Maryland Department of Natural Resources web site www.dnr.state.md.us/wildlife. Then click on Discover Maryland's Bats.

✓ Attract wildlife to your yard

Suburban yards and townhouses, even container gardens on a deck can include landscaping techniques to attract birds, butterflies, chipmunks and other wildlife.

For more information go to the Maryland Department of Natural Resources web site www.dnr.state.md.us/wildlife and click on Wild Acres.

Enviro News
212 South Bond Street, 3rd Floor
Bel Air, Maryland 21014

Telephone: (410) 638-3545
E-mail: environews@co.ha.md.us

Next Issue available
September 2004

The Love of Butterflying (Continued from page 3)

The pheromones drift through the air, odorless to humans, ignored by other insects, and irresistible to male Luna moths. The scent can be detected by the males from a distance of up to five miles. Their antennae are wide and feathery, affording the males a greater receptor area. If a piece of one of the antennae should break off as the insect circles the night lights and encounters a hungry predator, the male's ability to locate a female will be impaired.

A wild-caught female Luna moth will always be ready to begin depositing her three hundred or so eggs on the appropriate host plant. It has been my experience that the larvae favor sweet gum leaves and consistently thrive on them. Hickory, sumac or walnut are also acceptable species.

Several summers ago, I had hundreds of Luna moths hatching out within a week or two and every night I drove up and down the country roads to release them. One evening I was so exhausted that I decided to release the moths into my backyard after midnight.

I had several dozen females, and in order to carry them out all at once, I placed them on my hair, shirt and skirt. One by one they flew away into the night sky. I wished them all a fond adieu.

I awoke about 3 a.m. to release the 'boys'. I placed them on my hair and clothes as I had done with the females. Strangely, they would not leave me. I put several on trees and returned to the back porch. They followed me each time. As the sun began its ascent into the horizon, the males suddenly flew off into the trees.

A naturalist friend explained to me later that day that the females had impregnated my clothing and hair with their pheromones and the males thought that I was the biggest, most awesome Luna moth of all time. I now release the males first.

I have raised thousands of other silk moths such as Polyphemus, Cecropia, Io and Promethea. To see vivid color photos of these, you can consult the Audubon Field Guide of Insects. Also, there is a wonderful children's guide from Golden Books by Robert Mitchell. So, enjoy!!

For more information about butterflies and moths:

www.enchantedlearning.com/subjects/butterfly

www.npwrc.usgs.gov/resource/distr/lepid/bflyusa/bflyusa.htm

www.lisasenviroshows.com

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Fall 2004

Enviro News

A newsletter for environmental programs in Harford County

Welcome

Understanding our surroundings and the impact we have on our natural resources is the first step in restoring and protecting those areas. This issue of Enviro News includes articles that discuss the importance of characterizing our community.

Read the Deer Creek Watershed Plan to gain a better understanding of the magnificence of this special watershed and the County's effort to protect and restore this resource. Additionally, learn more about Bakerfield Elementary School's efforts in using computer mapping to engage their students in describing their community surroundings.

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Oyster Dredging On the Skipjack Martha Lewis

Experience hands-on oyster dredging as you work along side the crew of the skipjack.

Various dates in November, 2004

More information (410) 939-4078

James M. Harkins
Harford County Executive
"Preserving our Values, Protecting our Future"

Deer Creek Watershed Plan

by Pat Pudelkewicz
Harford County Planning & Zoning

Recently, Harford County was awarded a grant from the Maryland Department of Natural Resources to develop a watershed management plan for the Deer Creek watershed. This plan, known as a watershed restoration action strategy (WRAS), will be developed over the next two years. The goal of the WRAS is to protect water quality, conserve fish and wildlife habitats, and restore those areas found to be impaired.

Deer Creek is the largest watershed in Harford County, covering 38 percent of the County's land area. The entire watershed is 109,500 acres, of which 91,900 acres are within Harford County. The remainder of the watershed is in York County, Pennsylvania (16,000 acres) and Baltimore County (1,600 acres).

Deer Creek lies within the Piedmont Province, and extends across the entire County, from the Susquehanna River to the Baltimore County/Pennsylvania line. The mouth of Deer Creek lies just three miles below the Conowingo Dam.

Agriculture is the main land use in the watershed, followed by forested lands. With farming being a predominant land use in this watershed, the Soil Conservation District will be an important partner in the development of the plan.

(Continued page 2)

This document available in alternative format upon request

Schedule of Events

Hurricane Isabel Forum – November 15th – 17th; Learn how the effects of a hurricane impact the resources within the Chesapeake Bay ecosystem; Linthicum; Fee, pre-registration; (800) Your-Bay.

Maryland Water Monitoring Council Annual Conference – November 18th, 9:00 a.m. – 4:30 p.m.; Explore the various types of water monitoring taking place across Maryland including water monitoring for public health and monitoring across the hydrologic cycle; Linthicum; Fee, pre-registration (410) 554-5559.

Holiday Open House – December 4th, 12:00 – 4:00 p.m. Enjoy the sights, sounds and smells of the holiday season while touring the historic buildings of Stepping Stone Museum; Susquehanna State Park, Havre de Grace; (410) 557-7994.

Night Walkers – December 4th, 4:30 – 6:00 p.m.; Join naturalists for an evening hike geared towards families with school-aged children, fee, pre-registration; Eden Mill, Pylesville (410) 836-3050.

For More Info

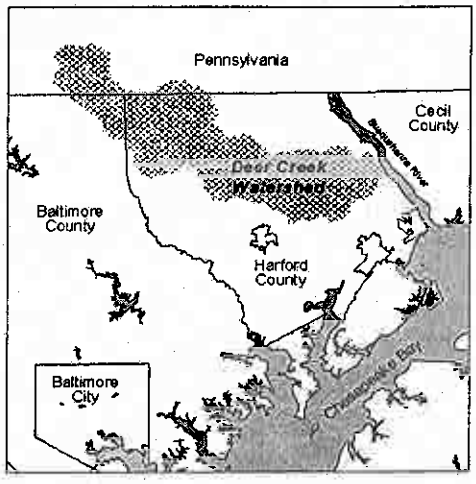
- Chesapeake Bay Program (800) Your-Bay
  www.chesapeakebay.net
- Eden Mill (410) 836-3050
  www.edenmill.org
- Harford County Government (410) 879-2000
  www.co.ha.md.us
- Harford Glen (410) 638-3903
  hcps.org/harfordglen/
- MD Dept. of Natural Resources (877) 620-8367
  www.dnr.state.md.us
- Skipjack Martha Lewis (410) 939-4078
  www.skipjackmarthalewis.org

Recommended Readings

Where Did All the Water Go
by Carolyn Stearns, David Aiken
This beautifully illustrated short story is written for middle school-aged children and explores natural phenomenon caused by the wind, weather and tides within the Chesapeake Bay region.

Deer Creek Watershed Plan (Continued from page 1)

Almost 30 percent of the Deer Creek watershed is currently protected in park land or through easements. Easements allow the land to remain in private ownership and use; however, further development is restricted. Over 22,000 acres are in agricultural easements, with another 1,010 acres in Rural Legacy easements.



There are 3,544 acres of State and County parks in the watershed. The three State Parks that lie within this watershed are Susquehanna, Rocks, and Palmer State Parks. All of these parks provide public access along Deer Creek.

The Lower Susquehanna Heritage Greenway, a certified Maryland Heritage Area, lies along the lower section of Deer Creek as it empties into the Susquehanna River. The Heritage Greenway promotes the protection of our cultural heritage as well as greenway and trail corridors.

The Deer Creek watershed is a recognized local and State resource worthy of protection. Its many significant attributes resulted in its designation as a State Scenic River in 1973. Numerous sensitive species inhabit this watershed, including the endangered Maryland Darter, the bog turtle, and brook trout. Many of the streams are designated trout waters. In 1998 a fish lift was constructed at Wilson Mill dam on Deer Creek to allow anadromous fish to spawn in the lower Deer Creek for the first time in 200 years.

Many conservation efforts are currently being undertaken in the watershed. The development of the Deer Creek WRAS will help coordinate and guide our efforts in the future. Throughout the development of the WRAS, meetings will be held to inform the public about the study and seek the public's input on key issues in the watershed. If you would like to be notified of these meetings, or for additional information, please contact Pat Pudelkewicz at (410) 638-3103 or pjpudelkewicz@co.ha.md.us.

Guest Author

The Bald Eagle: At Home in Harford County

by Heidi Ilg Paulus
Anita C. Leight Estuary Center

Many visitors to Leight Park have probably noticed that the number of bald eagles in the area is on the rebound. The Naturalists that lead canoe trips at the park have become accustomed to pointing out this majestic bird as it fishes the waters of Otter Point Creek.

The scientific name of the bald eagle, *Haliaeetus leucocephalus,* literally means a sea (*halo*) eagle (*aeetos*) with a white (*leakos*) head (*cephalus*). The adult bald eagle weighs 9 to 12 pounds and has a wing span of approximately seven feet. The female is slightly larger then the male. Juvenile eagles are a mottled brown and white and do not obtain the distinctive white head and tail until they are between 4 and 6 years old. The juveniles also have dark bills and feet, which become yellow as they mature.

Bald eagles eat primarily fish but will sometimes supplement their diet with small mammals, water fowl and carrion. Eagles can fly at speeds up to 30 m.p.h. and dive as fast as 100 m.p.h. Eagles are also known for their keen eyesight and can see fish up to one mile away! An eagle will swoop down to catch a fish with its talons, but can only lift prey half its own weight. Eagles have been known to use their strong wings as paddles and swim to shore with a particularly heavy fish.

Bald eagles mate for life and can live for 40 years in the wild. Courting behavior begins in April. This behavior involves aerial displays by both males and females, locking talons and spectacular dives. The female lays 1 to 3 eggs and, after a 35-day incubation period, the eggs hatch in late May to early June. The baby eagles are able to fly by the end of summer. At this point, the eagles migrate to warmer climates where they can fish and roost for the winter.

The bald eagle may have numbered half a million before Europeans settled the lands. With the increase of the human population, however, a significant amount of the eagle's natural habitat was destroyed and the population declined sharply in the late 1800's. From 1917 to 1953, 100,000 bald eagles were killed in Alaska by salmon fisherman who feared that the eagle was a threat to the salmon population. Due to increased use of the use of pesticides, including DDT, the population continued to decline and, on July 4, 1976, the US Fish and Wildlife Service officially listed the bald eagle as a national endangered species.

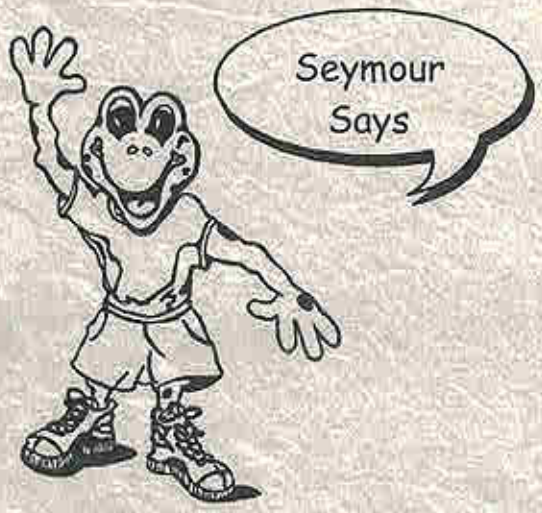
Historically in Maryland, as many as 3,000 pairs of bald eagles may have lived in the Chesapeake basin. In 1972, only 72 active nests could be found in the Maryland and Virginia regions of the watershed with no active nests in Pennsylvania. With the change in management strategies and increased awareness, the population has increased to include 760 nests in the Maryland, Pennsylvania, Virginia and D.C. portion of the Chesapeake Bay watershed. Due to the increase in population, the status of the bald eagle has recently been changed from endangered to threatened. For the eagle to be taken off the list entirely, permanent habitat protection will need to be completed. Once the eagle is removed from the list of threatened species, the federal government is required to monitor the population for five years.

In Harford County, the number of eagles at Aberdeen Proving Ground (APG) was reported to be 15 in 1983. 16 years later, the number of eagles on APG has risen to 160. Regulations at APG require a 1-kilometer buffer radius around each nest site to prevent any human interference. During the eagles breeding period, testing and training are held in other locations to ensure that the eagles are not disturbed. Eagles are attracted to the Proving Ground because it is mostly undeveloped with large trees and it is located near a large body of water. Unfortunately, even with the successful management plan there have been an increased number of eagle fatalities on APG in the recent past. Working with the US Fish and Wildlife service, the Army feels this may be due to the eagles landing on or hitting the power lines on APG. Until further information is known, APG has begun to modify the power lines located on the post and has begun to add spheres in eagle nesting areas to increase the visibly of the lines.

Visit Leight Park for a hike or a guided canoe trip this year to observe the majestic bald eagle as it continues to thrive in Harford County.

County	Occupied Nests	Active Nests	Nests Surveyed
Baltimore	3	3	6
Cecil	19	18	25
Harford	33	28	43

MD DNR 2003 Nesting Survey



The following are some suggestions on how to make your fall and winter activities more environmentally friendly:

✓ **Fall is the time to fertilize your lawn**
Get a soil test first to find out how much fertilizer your lawn needs. Over fertilization not only wastes money, but the excess nutrients will run off into streams and cause water quality problems. Call the Extension Office for more information (410) 638-3255.

✓ **Christmas wrapping paper is recyclable**
You may also want to consider wrapping gifts in brown paper grocery bags and have the kids decorate them. It's fun for the kids, it reuses an existing product and the paper can later be recycled.

✓ **Use ice melt products responsibly**
If you need to use ice melt products, use those that contain calcium chloride, rather than fertilizer or sodium chloride (rock salt) which can harm vegetation and have a detrimental effect on stream water quality. Plain clay kitty litter is very good option when all you need is traction.

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212 South Bond Street, 3rd Floor
Bel Air, Maryland 21014

Telephone: (410) 638-3545
E-mail: environews@co.ha.md.us

Next Issue available
December 2004

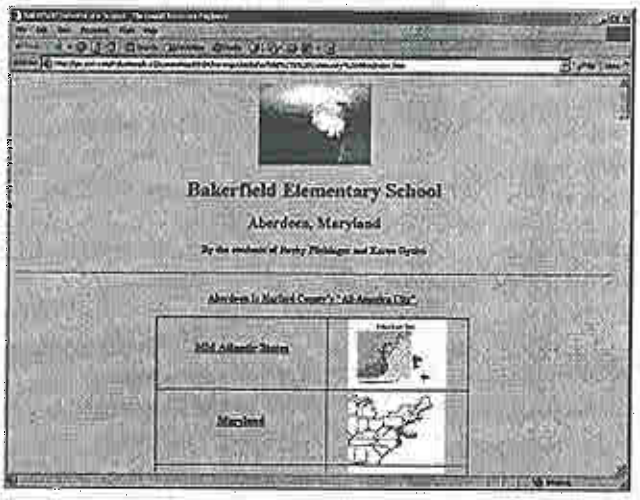
Schools

Community Atlas Project

by Eric Cromwell
Harford Glen

This past school year, Bakerfield Elementary School became the first elementary school in Maryland to complete a Community Atlas Project.

The Community Atlas program was created by Earth Systems Research Institute (ESRI) as a way for students to define their community through computerized maps or Geographic Information Systems (GIS). The output of the project is a website that describes their community.



As a reward for their work, Bakerfield Elementary received a school-wide site license of ArcView from ESRI. ArcView is an industry-standard GIS software that will allow students to ask "What if?" questions when looking at maps and other spatially related data.

Teachers Becky Flickinger and Karen Gyolai worked with their students over several days to complete the webpage that describes the town of Aberdeen.

To view the website, please visit the ESRI website: http://www.esri.com/industries/k-12/atlas/. Upon logging in, browse the 2003-2004 data for Bakerfield Elementary.

Teachers interested in creating their own Community Atlas should contact Eric Cromwell at Harford Glen. Phone 410-638-3903 or Eric.Cromwell@hcps.org